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लेपित और उपचारित फेब्रिक की परीक्षण पद्धतियाँ

भाग 7 रबड़-अथवा प्लास्टिक-लेपित फेब्रिक — जल द्वारा वेधन के प्रति प्रतिरोधिता ज्ञात करना

(दूसरा पुनरीक्षण)

Indian Standard

METHODS OF TEST FOR COATED AND TREATED FABRICS

PART 7 RUBBER-OR PLASTICS-COATED FABRICS — DETERMINATION OF RESISTANCE TO PENETRATION BY WATER

(Second Revision)

ICS 59.080.40

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 2009

Price Group 2

Rubber and Rubber Products Sectional Committee, PCD 13

NATIONAL FOREWORD

This Indian Standard (Part 7) (Second Revision) which is identical with ISO 1420 : 2001 'Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Rubber and Rubber Products Sectional Committee and approval of the Petroleum, Coal and Related Products Division Council.

This standard was first published in 1973 and subsequently revised in 1986 and second revision is being carried out to align it with latest published International Standard on the subject.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

The technical committee responsible for the preparation of this standard has reviewed the provisions of the following International Standards and has decided that they are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 2231 : 1989	Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing
ISO 2286-1 : 1998	Rubber- or plastics-coated fabrics — Determination of roll characteristics — Part 1 Methods for determination of length, width and net mass

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

METHODS OF TEST FOR COATED AND TREATED FABRICS

PART 7 RUBBER-OR PLASTICS-COATED FABRICS — DETERMINATION OF RESISTANCE TO PENETRATION BY WATER

(Second Revision)

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This International Standard specifies a pass/fail method for the determination of the resistance of rubber- or plastics-coated fabrics to water penetration (hydrostatic resistance) when subjected to a specific hydrostatic pressure over a fixed period of time. Two test specimen shapes are given: one is circular, the other square.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2231:1989, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing*

ISO 2286-1:1998, *Rubber- or plastics-coated fabrics — Determination of roll characteristics — Part 1: Methods for determination of length, width and net mass*

3 Principle

A test specimen of coated fabric is subjected to an increasing pressure of water on one face, under standard conditions, until a predetermined pressure specified in the coated-fabric specification is obtained. The required pressure is maintained for a specified time or until penetration occurs, whichever is the sooner.

4 Apparatus

4.1 General

The apparatus shall consist of an open-mouthed vessel fitted with a clamp to fasten the test specimen over the mouth. The lower part of the vessel shall have a nozzle allowing it to be connected to a water inlet pipe to fill it with water at room temperature. A retaining mesh is fitted over the test specimen. This mesh shall comprise wires of 1 mm to 1,2 mm diameter forming squares of side not greater than 30 mm.

4.2 Means of measuring water pressure

Either a manometer, connected to the test head, allowing water pressures up to 19,6 kPa (200 cmH_2O) to be read to an accuracy of ± 1 %, or a pressure gauge, graduated in centimetres head of water or in kilopascals and with a maximum reading of at least 100 kPa (946 cmH_2O), shall be used to measure the water pressure applied to the test specimen.

4.3 Test area

The open mouth of the vessel (see 4.1) over which the test specimen is clamped shall be either a square of side 100 mm or a circle of diameter 113 mm, giving an area of 100 cm^2 in each case. If necessary, soft rubber sealing gaskets can be employed between the coated-fabric test specimen and the surfaces of the clamps in order to reduce the risk of damage to the test specimen by the clamps, and to facilitate the testing of seams. In this respect, rubber having a hardness of approximately 40 IRHD (International Rubber Hardness Degrees) and approximately 0,5 cm thick or 1 cm in diameter has been found useful. Alternatively, a closed-cell, crosslinked-polyethylene foam having a density of 45 kg/m^3 to 55 kg/m^3 and approximately 1 cm thick can also be used.

5 Test specimens

5.1 Taking test specimens

Take test specimens from an area with no functional or visible defects and located in the usable width of the coated fabric as defined in ISO 2286-1.

5.2 Number

Unless otherwise specified in the material specification, test five specimens in each series of tests.

5.3 Shape and dimensions

5.3.1 Square specimens

Each specimen shall be square with sides measuring approximately 200 mm.

5.3.2 Circular specimens

Each specimen shall have a diameter of 130 mm to 200 mm.

5.4 Conditioning

Immediately prior to testing, condition the specimens for at least 16 h in an appropriate atmosphere in accordance with ISO 2231.

6 Procedure

6.1 Test method

With the vessel connected to the water inlet pipe, open the inlet valve and allow the water to run into the vessel until it overflows. Check that the top of the vessel is horizontal by ensuring that the water is uniformly flush with all edges. Ensure that the inlet pipe is totally purged of air, and also that the level of water in the vessel corresponds to the zero on the manometer tube or pressure gauge (see 4.2). Place the test specimen on the vessel with the face to be tested (moistened prior to the test) in contact with the water, without trapping any air under the test specimen.

Fit the retaining mesh (see 4.1). Secure the test specimen and the mesh firmly on the vessel using the clamp, taking care to ensure that the edges of the clamp are completely parallel with those of the vessel.

6.2 Application of pressure

Open the inlet valve so that the pressure in the vessel gradually increases at the required rate (pressures less than or equal to 30 kPa shall be attained in 1 min ± 10 s; pressures of more than 30 kPa shall be attained in 2 min ± 20 s). Verify the pressure. Once the required pressure has been reached, adjust the inlet valve, if necessary, and maintain the pressure for the required time (pressures less than or equal to 30 kPa shall be maintained for 2 min; pressures of more than 30 kPa shall be maintained for 5 min). The test duration will therefore be 3 min in the former case and 7 min in the latter. Then inspect the visible part of the test specimen in order to detect whether any water droplets have passed through the coated fabric. Close the water inlet valve and return the pressure to zero by opening the evacuation valve. If a leak is detected in the test specimen clamping zone during the test, begin again.

7 Expression of results

The visible face of the coated fabric shall not have any "water penetration points", nor any trace of moisture, on any of the five test specimens. A "water penetration point" is considered to be any spot in which a drop appears as a pin prick. Penetration occurring exactly on the edges of the clamp shall not be considered to be a "water penetration point".

8 Test report

The test report shall include the following:

a) a reference to this International Standard;

b) a description of the coated fabric tested;

c) the conditioning and test atmosphere used;

d) the number of test specimens tested;

e) whether the test specimens were square or circular;

f) which side(s) of the coated fabric were subjected to water pressure;

g) the pressure and the time the pressure was applied;

h) whether the coated fabric passed or failed the test;

i) details of any deviations from the standard test procedure;

j) the date of the test.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard alongwith amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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Amendments Issued Since Publication

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BUREAU OF INDIAN STANDARDS

Headquarters

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.org.in

Regional Offices		*Telephones*
Central	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617 2323 3841
Eastern	1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	SCO 335-336, Sector 34-A, CHANDIGARH 160022	260 3843 260 9285
Southern	C.I.T. Campus, IV Cross Road, CHENNAI 600113	2254 1216, 2254 1442 2254 2519, 2254 2315
Western	Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	2832 9295, 2832 7858 2832 7891, 2832 7892

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